

Morgan J. Colp | *Curriculum vitae* October 2021

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EDUCATION

PhD Thesis

January 2018 – present

Biochemistry & Molecular Biology, Dalhousie University

Areas of Research: Genome Evolution, Molecular Genetics, Protistology

Research Disciplines: Molecular Biology, Evolution

Supervisor: Dr. John M. Archibald

Bachelor of Science (Honours, Co-op) with a Certificate in Genetics

September 2013 – December 2017

Biochemistry & Molecular Biology / Biology, Dalhousie University 4.22/4.3 GPA

Thesis Title: Development of *Acanthamoeba castellanii* as a model system to investigate lateral gene transfer in eukaryotes

Areas of Research: Genome Evolution, Molecular Genetics, Protistology

Research Disciplines: Biochemistry, Molecular Biology

Supervisor: Dr. John M. Archibald

PUBLICATIONS

Matthey-Dorey, C.* , **Colp, M. J.***, Escoll, P., Thierry, A., Curtis, B., Sarrasin, M., Gray, M. W., Lang, B. F., Archibald, J. M., Buchrieser, C., & Koszul, R. (2021). Chromosome-scale assemblies of *Acanthamoeba castellanii* genomes provide insights into *Legionella pneumophila* infection-related chromatin re-organization. Manuscript submitted for publication.

** These authors contributed equally*

Colp, M. J. & Archibald, J. M. (2020). The language of symbiosis: Insights from protist biology. In Cellular Dialogues in the Holobiont., T. C. G. Bosch, M. G. Hadfield, eds. (Boca Raton: CRC Press), pp. 17-33.

Colp, M. J. & Archibald, J. M. (2019). Evolution: New protist predators under the sun. *Curr. Biol.* 29, R936-R938. doi: 10.1016/j.cub.2019.08.029

Tanifuji, G., Cenci, U., Moog, D., Dean, S., Nakayama, T., David, V., Fiala, I., Curtis, B. A., Sibbald, S. J., Onodera, N. T., **Colp, M.**, Flegontov, P., Johnson-MacKinnon, J., McPhee, M., Inagaki, Y., Hashimoto, T., Kelly, S., Gull, K., Lukeš, J., and Archibald, J. M. (2017). Genome sequencing reveals metabolic and cellular interdependence in an amoeba-kinetoplastid symbiosis. *Sci. Rep.-U.K.* 7: 11688. doi:10.1038/s41598-017-11866-x

Muñoz-Gómez, S. A., Mejía-Franco, F. G., Durnin, K., **Colp, M.**, Grisdale, C. J., Archibald, J. M., and Slamovits, C. H. (2017). The new red algal subphylum Proteorhodophytina comprises the largest and most divergent plastid genomes known. *Curr. Biol.* 27, 1677-1684. doi: 10.1016/j.cub.2017.04.054

Sibbald, S. J., Cenci, U., **Colp, M.**, Eglit, Y., O'Kelly, C. J. and Archibald, J. M. (2017). Diversity and Evolution of *Paramoeba* spp. and their Kinetoplastid Endosymbionts. *J. Euk. Microbiol.* doi:10.1111/jeu.12394

PRESENTATIONS

Colp, M. J., Curtis, B. A., & Archibald, J. M. 2019. Nanopore sequencing of the *Acanthamoeba castellanii* genome: toward a model for eukaryote lateral gene transfer. (Oral Presentation)

Presented at:

SMBE 2019 Annual Meeting (Manchester, UK) – July 2019

Colp, M.J., Curtis, B.A., & Archibald, J.M. 2018. An experimental model for studying lateral gene transfer in eukaryotes. (Oral Presentation)

Presented at:

PSA/ISOP Joint Annual Meeting (UBC, Vancouver, Canada) – July 2018

Colp, M. & Archibald, J. M. 2018. An experimental model for studying lateral gene transfer in eukaryotes. (Oral Presentation)

Presented at:

CRC1182 Junior Researchers Training Workshop (Kiel, Germany) – May 2018

Colp, M., Muñoz-Gómez, S. A., Mejía-Franco, F. G., Durnin, K., Grisdale, C. J., Archibald, J. M., and Slamovits, C. H. 2017. The plastid genomes of early branching rhodophyte algae reveal unprecedented levels of self-splicing intron proliferation. (Conference Poster)

Presented at:

15th International Congress of Protistology (Prague, Czech Republic) – August 2017

RESEARCH EXPERIENCE

PhD Thesis Research Project, Dalhousie University January 2018 - present

Experimentally investigating eukaryotic genome evolution using *Acanthamoeba castellanii* as a model, focusing on transgene integration and the possibility of lateral gene transfer. This includes sequencing of wild-type and transformant genomes, karyotyping by pulsed-field gel electrophoresis and fluorescent *in situ* hybridization, and probing genomic DNA for transgenes. Efforts to observe lateral gene transfer are ongoing, through feeding experiments with transformed bacteria.

Honours Thesis Research Project, Dalhousie University January – December 2017

Developed *Acanthamoeba castellanii* as a model system for lateral gene transfer experiments. This included optimizing culture conditions, extracting and sequencing genomic DNA, testing plasmids in the amoeba using transfection, and sequencing transformants to investigate transgene integration.

Undergraduate Research Assistant, Dalhousie University May – December 2016

Maintained a culture of *Paramoeba invadens*, extracted genomic DNA and gel extracted an uncharacterized small DNA molecule. Used next generation sequencing and bioinformatics analyses to attempt to characterize the molecule. I also used PCR to amplify the 18S rDNA gene of *P. invadens* and its eukaryotic endosymbiont, cloned the PCR product, and prepared the clones for Sanger sequencing.

Starting from September, I manually curated the annotations on six newly sequenced red algal plastid genomes.

Research and Fieldwork Assistant, Dalhousie University May – August 2015

Extracted DNA from tissue samples of *Salvelinus fontinalis*, amplified various microsatellite regions by PCR and genotyped the single sequence length polymorphisms for use in population genetic analyses. Also aided in field sampling trips to acquire fin clip samples from *Salvelinus fontinalis*, *Catostomus commersonii*, *Fundulus diaphanus*, and *Perca flavescens*.

OTHER WORK/VOLUNTEER EXPERIENCE

Manuscript Reviewer

Environmental Microbiology, 2020 – 1 manuscript

Writing Tutor, Dalhousie University**September 2021 – Present**

Assisting students with all types of academic writing in the Writing Centre at Dalhousie University in a one-on-one tutoring format.

Teaching Assistant, Dalhousie University**January 2017 – April 2021**

Courses: BIOC2610 (Introductory Biochemistry Lab), BIOC3400 (Nucleic Acid Biochemistry), BIOC3300 (Intermediary Metabolism)

Assisted students throughout the lab procedures, marked students' lab reports/assignments, and demonstrated certain techniques in the lab.

AWARDS

NSERC Alexander Graham Bell Canada Graduate Scholarships – Doctoral, 2019 - \$105 000

Killam Predoctoral Scholarship, 2019 – Honorary (Award value \$120 000)

Nova Scotia Graduate Scholarship, 2019 – Honorary (Award value \$15 000)

Dalhousie President's Award, 2019 - \$30 000

University Medal in Biochemistry & Molecular Biology, Dalhousie University, 2018

Peter Dolphin Memorial Prize in Biochemistry, Dalhousie University, 2018 - \$250

Developmental Biology Prize, Dalhousie University, 2018 - \$750

Gray-Doolittle Award for Research Excellence – Junior, 2018 - \$50

ISoP Holz-Conner Travel Grant, 2018 - \$1000

NSERC Alexander Graham Bell Canada Graduate Scholarships – Masters, 2018 - \$17 500

ISoP Holz-Conner Travel Grant, 2017 - \$1200

Faye Sobey Undergraduate Research Award, Summer 2017 - \$5500

NSERC Undergraduate Student Research Award, Fall 2016 - \$4500

AHLD Gunawardena Memorial Prize in Diversity of Life II, Dalhousie University, 2016 - \$150

IB Renewable Entrance Scholarship (Dalhousie University), 2013 - \$20 000

McGill University Entrance Scholarship (Declined), 2013 - \$3000

Queen's University Principal's Scholarship (Declined), 2013 - \$8000

University of Toronto Admission Scholarship (Declined), 2013 - \$2000